

ORIGINAL ARTICLE

Trends and state variations in out-of-hospital births in the United States, 2004-2017

Marian F. MacDorman PhD¹  | Eugene Declercq PhD² 

¹Maryland Population Research Center, University of Maryland, College Park, Maryland

²Community Health Sciences Department, Boston University School of Public Health, Boston, Massachusetts

Correspondence

Marian F. MacDorman, Maryland Population Research Center, University of Maryland, College Park, MD.
Email: mmacdorm@umd.edu

Funding information

Eunice Kennedy Shriver National Center for Child Health and Human Development, Grant/Award Number: P2C-HD041041; Maryland Population Research Center; Maternal and Child Health Bureau, Grant/Award Number: R40MC29444, Boston University School of Public Health

Abstract

Background: Out-of-hospital births have been increasing in the United States, although past studies have found wide variations between states. Our purpose was to examine trends in out-of-hospital births, the risk profile of these births, and state differences in women's access to these births.

Methods: National birth certificate data from 2004 to 2017 were analyzed. Newly available national data on method of payment for the delivery (private insurance, Medicaid, self-pay) were used to measure access to out-of-hospital birth options.

Results: After a gradual decline from 1990 to 2004, the number of out-of-hospital births increased from 35 578 in 2004 to 62 228 in 2017. In 2017, 1 of every 62 births in the United States was an out-of-hospital birth (1.61%). Home births increased by 77% from 2004 to 2017, whereas birth center births more than doubled. Out-of-hospital births were more common in the Pacific Northwest and less common in the southeastern states such as Alabama, Louisiana, and Mississippi. Women with planned home and birth center births were less likely to have a number of population characteristics associated with poor pregnancy outcomes, including teen births, smoking during pregnancy, obesity, and preterm, low birthweight, and multiple births. More than 2/3 of planned home births were self-paid, compared with 1/3 of birth center and just 3% of hospital births, with large variations by state.

Conclusions: Lack of insurance or Medicaid coverage is an important limiting factor for women desiring out-of-hospital birth in most states. Recent increases in out-of-hospital births despite important limiting factors highlight the strong motivation of some women to choose out-of-hospital birth.

1 | INTRODUCTION

The rapid growth in home and birth center births in the United States since 2004^{1,2} has led to considerable research and discussion concerning place of birth.^{3,4} The slow adoption by states of the 2003 revised birth certificate has meant that a number of key variables, including planning status of home births, payer for the birth (private insurance, Medicaid, or self-pay), and whether or not a woman received WIC benefits, were not available nationally until 2016.⁸ With the exception of California, which does not report on planning status of home births,⁹ we now report nationally for the first time

on these variables and their relationship to place of delivery. A recent move toward using the term “community birth” to denote planned home and birth center births is laudable^{3,4,10}; however, birth certificate data do not allow for accurate identification of community births in all states. Thus, the term “out-of-hospital” birth is used for this paper to promote uniformity in definitions between states, and to facilitate trend analysis^{1,2}; see Discussion section.

An important consideration for every woman in choosing a place of birth is whether insurance companies and/or Medicaid will cover the cost of the birth. In general, home and birth center births are about 1/2 to 1/3 the cost of hospital

births.^{11,12} However, if a woman's insurance company or Medicaid will not cover these births, then the cost is borne directly by the woman, which has the potential to make out-of-pocket payments for planned home or birth center births so costly as to be prohibitive. Thus, the new birth certificate data on method of payment for the delivery provide important information about access to out-of-hospital births.

The aims of the paper are to examine trends in out-of-hospital, home, and birth center births and also variations in the incidence of these births by state. Since it is important to select low-risk women as candidates for out-of-hospital birth, we also examine differences by place of birth in population characteristics that may denote a higher risk of poor pregnancy outcome. Finally, we examine state differences in access to care for birth center and planned home births as represented by private insurance or Medicare coverage to pay for the cost of the delivery.

2 | METHODS

Data for 2017 and prior years are derived from birth certificates registered in state vital statistics offices, and then transmitted to the National Center for Health Statistics, where the data are made into publicly available national data files.^{8,9} For out-of-hospital births, information needed to complete the birth certificate is provided by the birth attendant (usually a midwife). For hospital births, the birth certificate is completed by the hospital birth registrar.¹³

Two categories of midwife data were collected on the birth certificate: certified nurse-midwife (CNM)/certified midwife (CM) and non-CNM/CM midwives. Non-CNM/CM midwives includes any other type of midwife besides CNM/CM, such as a certified professional midwife, licensed midwife, or direct-entry midwife.¹³

Race and Hispanic origin are reported independently on the birth certificate and are obtained from the woman. Data for Hispanic women are not further classified by race because the overwhelming majority of these women are reported as white. Recent changes to race classification data allow for the reporting of single and multiple race data⁸; however, to facilitate trend analysis, we continue to use the bridged-race data, which has been in use for trend analysis for the past decade.⁸ The obstetric estimate of gestation has been used as the national standard measure for gestational age since 2014,¹⁴ and is used to measure gestational age for the percent preterm (<37 completed weeks' gestation) variable in this study.

Variables included in the study are generally well reported on birth certificates; missing values (<4% for all variables) were excluded before percentages were computed. Planning status of home birth was not reported for California (12% of United States births), whereas breastfeeding initiation was not reported by California and Michigan (15% of United States births).⁹ Percentages were computed per 100 birthing women

(Table 1 and Figures 1 and 2) and also per 100 women in a specific group (Tables 2 and 3). Following National Center for Health Statistics guidelines, data were suppressed for states with fewer than 20 birth center births.⁹ All statements in the text were tested for statistical significance using a 2-proportion Z test, and all differences noted as higher or lower were statistically significant at the $P < 0.05$ level.

3 | RESULTS

In 2017, there were 62 228 out-of-hospital births in the United States, comprising 1.61% of United States births. This included 38 343 home births and 19 878 birth center births (Table 1). A small proportion of out-of-hospital births were listed as "other" (3273), "clinic/doctor's office" (553), or "unknown" (181) location. In 2017, the planning status of home birth was reported by all states except California. For the 49 reporting states and Washington DC, about 85% of home births were planned home births, and 15% were unplanned home births.

3.1 | Trends

After a gradual decline from 1990 to 2004,¹⁵ the percentage of out-of-hospital births increased by 85%, from 0.87% of births in 2004 to 1.61% of births in 2017 (Figure 1). Home births increased by 77%, from 0.56% of births in 2004 to 0.99% in 2017, whereas birth center births more than doubled, from 0.23% of births in 2004 to 0.52% in 2017.

Non-Hispanic white women had the highest percentage of out-of-hospital births and also the largest percent increase from 2004 to 2017 (Figure 2). For non-Hispanic white women, the percent of out-of-hospital births more than doubled from 1.20% of total births in 2004 to 2.43% in 2017. In 2017, 1 out of every 41 United States births to a non-Hispanic white woman was an out-of-hospital birth. Out-of-hospital births also increased for all other race/ethnicity groups, albeit from a smaller base: by 76% for non-Hispanic black women, by 63% each for Hispanic and Asian or Pacific Islander women, and by 69% for Native American women. The increase in out-of-hospital births among non-Hispanic white women accounted for 81% of the overall increase in out-of-hospital births between 2004 and 2017.

3.2 | State variations in out-of-hospital births

These generally upward trends concealed large differences in out-of-hospital birth rates by state and geographic region (Table 1). Several states in the northwestern part of the country and one eastern state had out-of-hospital birth rates above 3%, including Alaska (7.88%), Montana (4.08%), Idaho (3.77%), Washington (3.77%), Oregon

TABLE 1 Number and percentage of births by place of birth, United States, and each state, 2017

	Total births, n	Total out of hospital ^a , n (%)	Birth center, n (%)	Home ^b , n (%)	Among home births, percent planned ^{b,c}
United States	3 855 500	62 228 (1.61)	19 878 (0.52)	38 343 (0.99)	84.9
Alabama	58 941	256 (0.43)	^d	182 (0.31)	46.5
Alaska	10 445	823 (7.88)	589 (5.64)	206 (1.97)	91.1
Arizona	81 872	1399 (1.71)	607 (0.74)	706 (0.86)	87.5
Arkansas	37 520	422 (1.12)	87 (0.23)	292 (0.78)	87.2
California	471 658	5398 (1.14)	1413 (0.30)	3520 (0.75)	^c
Colorado	64 382	1679 (2.61)	589 (0.91)	1040 (1.62)	89.5
Connecticut	35 221	342 (0.97)	104 (0.30)	212 (0.60)	79.3
Delaware	10 855	235 (2.16)	140 (1.29)	83 (0.76)	75.6
District of Columbia	9560	100 (1.05)	24 (0.25)	56 (0.59)	69.6
Florida	223 630	4043 (1.81)	1820 (0.81)	2020 (0.90)	83.3
Georgia	129 243	1182 (0.91)	307 (0.24)	822 (0.64)	68.0
Hawaii	17 517	371 (2.12)	^d	318 (1.82)	91.2
Idaho	22 181	837 (3.77)	319 (1.44)	504 (2.27)	95.2
Illinois	149 390	921 (0.62)	^d	784 (0.52)	73.8
Indiana	82 170	2103 (2.56)	732 (0.89)	1354 (1.65)	92.8
Iowa	38 430	546 (1.42)	^d	489 (1.27)	84.3
Kansas	36 519	713 (1.95)	236 (0.65)	449 (1.23)	90.2
Kentucky	54 752	774 (1.41)	27 (0.05)	641 (1.17)	88.6
Louisiana	61 018	283 (0.46)	51 (0.08)	173 (0.28)	45.7
Maine	12 298	277 (2.25)	20 (0.16)	243 (1.98)	92.9
Maryland	71 641	924 (1.29)	326 (0.46)	515 (0.72)	67.2
Massachusetts	70 702	637 (0.90)	192 (0.27)	402 (0.57)	58.0
Michigan	111 426	1542 (1.38)	117 (0.11)	1375 (1.23)	87.0
Minnesota	68 595	1551 (2.26)	543 (0.79)	972 (1.42)	88.7
Mississippi	37 357	203 (0.54)	^d	179 (0.48)	63.1
Missouri	73 034	1722 (2.36)	268 (0.37)	1164 (1.59)	90.5
Montana	11 799	481 (4.08)	158 (1.34)	323 (2.74)	95.5
Nebraska	25 821	135 (0.52)	38 (0.15)	90 (0.35)	58.1
Nevada	35 756	512 (1.43)	^d	487 (1.36)	82.7
New Hampshire	12 116	267 (2.20)	121 (1.00)	143 (1.18)	83.0
New Jersey	101 250	514 (0.51)	^d	397 (0.39)	50.5
New Mexico	23 767	518 (2.18)	209 (0.88)	283 (1.19)	88.9
New York	229 737	3203 (1.39)	173 (0.08)	2339 (1.02)	77.7
North Carolina	120 125	1839 (1.53)	1173 (0.98)	642 (0.53)	68.6
North Dakota	10 737	135 (1.26)	^d	123 (1.15)	85.4
Ohio	136 832	2291 (1.67)	716 (0.52)	1482 (1.08)	82.2
Oklahoma	50214	707 (1.41)	112 (0.22)	543 (1.08)	88.3
Oregon	43 631	1561 (3.58)	613 (1.40)	916 (2.10)	92.6
Pennsylvania	137 745	4865 (3.53)	1711 (1.24)	2611 (1.90)	91.4
Rhode Island	10 638	54 (0.51)	^d	51 (0.48)	72.5
South Carolina	57 029	964 (1.69)	549 (0.96)	406 (0.71)	73.1
South Dakota	12 134	105 (0.87)	^d	99 (0.82)	77.8

(Continues)

TABLE 1 (Continued)

	Total births, n	Total out of hospital ^a , n (%)	Birth center, n (%)	Home ^b , n (%)	Among home births, percent planned ^{b,c}
Tennessee	81 016	1038 (1.28)	214 (0.26)	785 (0.97)	89.4
Texas	382 050	5562 (1.46)	3117 (0.82)	2378 (0.62)	82.4
Utah	48 585	1399 (2.88)	388 (0.80)	993 (2.04)	95.0
Vermont	5655	152 (2.69)	^d	145 (2.56)	91.6
Virginia	100 391	1241 (1.24)	345 (0.34)	878 (0.87)	85.1
Washington	87 562	3297 (3.77)	1351 (1.54)	1877 (2.14)	92.0
West Virginia	18 675	181 (0.97)	28 (0.15)	125 (0.67)	74.6
Wisconsin	64 975	1755 (2.70)	272 (0.42)	1366 (2.10)	99.0
Wyoming	6903	169 (2.45)	^d	160 (2.32)	94.9

Source: Authors' calculations based on 2017 birth certificate data.

^aCategory includes 3273 "other," 553 "clinic or doctor's office," and 181 "not stated" location.

^bDoes not include planned home births that were transferred to hospitals.

^cExcludes data from California, which did not report planning status of home birth.

^dData were suppressed for 12 states that had <20 birth center births; see Methods section.

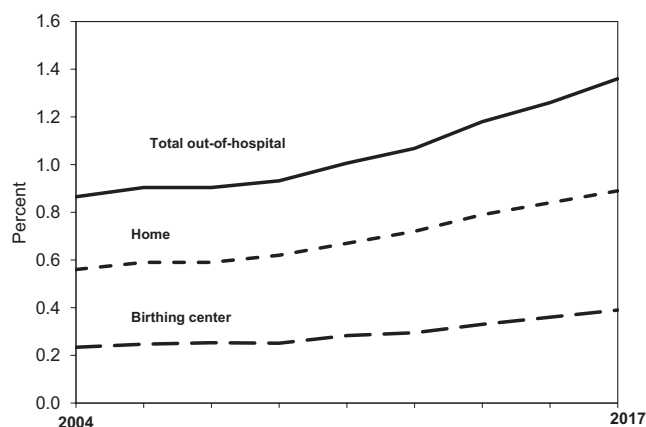


FIGURE 1 Percentage of births occurring out of hospital: United States, 2004-2017. Source: Birth certificate data from the National Vital Statistics System. Note: Out-of-hospital births include those occurring in a home, birthing center, clinic or doctor's office, or other location

(3.58%), and Pennsylvania (3.53%). In contrast, several other states had out-of-hospital birth rates from 0.4% to 0.6%: Alabama, Louisiana, Mississippi, Nebraska, New Jersey, and Rhode Island.

Home births were most common in Montana (2.74%), Vermont (2.56%), Wyoming (2.32%), Idaho (2.27%), Washington (2.14%), Wisconsin (2.10%), Oregon (2.10%), and Utah (2.04%), whereas home births were least common (below 0.5%) in Alabama, Louisiana, Mississippi, Nebraska, New Jersey, and Rhode Island.

Birthing centers are available in most, but not all states.¹⁶ Twelve states (Alabama, Hawaii, Illinois, Iowa, Mississippi, Nevada, New Jersey, North Dakota, Rhode Island, South Dakota, Vermont, and Wyoming) had fewer than 20 birth center births in 2017, suggesting that birth centers were not

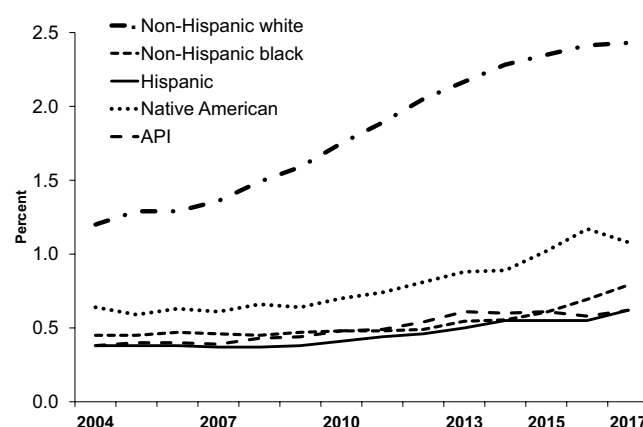


FIGURE 2 Percentage of births occurring out of hospital by race and Hispanic origin of mother: United States, 2004-2017. Source: Birth certificate data from the National Vital Statistics System. Note: API, Asian or Pacific Islander

an available option for women living in those states. Among states with at least 20 birth center births in 2017, Alaska had the highest percentage of births occurring in a birth center (5.64%), followed by Washington (1.54%), Idaho (1.44%), Oregon (1.40%), Montana (1.34%), Delaware (1.29%), Pennsylvania (1.24%), and New Hampshire (1.00%).

3.3 | Population characteristics

Although it is no replacement for detailed medical information, the birth certificate data do contain limited information on population characteristics, which may be associated with a higher or lower risk for poor pregnancy outcome.^{8,17} For example, just 0.7% of planned home and 0.9% of birth center births were to teen mothers, compared with 5.2% of hospital births (Table 2). However, 23.5% of planned home births were to mothers aged

TABLE 2 Percent of births with selected characteristics by place of birth, United States, 2017

	All births, n = 3 855 500	Hospital, n = 3 793 272	Out of hospital ^a , n = 62 228	Birth center, n = 19 878	Home ^b , n = 38 343	Planned home ^{b,c} , n = 28 994
Age of mother (y)						
<20	5.1	5.2	1.4	0.9	1.4	0.7
20-34	77.3	77.3	77.1	81.0	74.9	75.8
35+	17.6	17.5	21.5	18.1	23.6	23.5
Mother's education— Bachelor's degree or higher						
First live birth	37.9	38.2	23.3	33.4	18.5	17.7
Smoked during pregnancy	6.9	7.0	3.0	1.1	3.3	0.9
Pre-pregnancy body mass index						
Underweight (<18.5)	3.4	3.4	4.3	3.9	4.4	4.2
Normal weight (20.0-24.9)	43.3	43.1	59.5	61.1	59.4	60.4
Overweight (25.0-29.9)	26.2	26.3	22.4	22.0	22.3	22.2
Obese (30+)	27.1	27.3	13.9	13.0	13.9	13.2
Preterm birth	11.6	11.8	4.5	1.5	5.2	2.1
Low birthweight	8.3	8.4	3.6	0.9	4.2	1.3
Multiple birth	3.4	3.5	0.7	0.2	1.0	0.7
VBAC ^d	2.0	2.0	3.4	1.7	4.1	4.2
Trimester prenatal care began						
First trimester	77.3	77.6	60.3	69.4	56.2	55.8
Second trimester	16.5	16.3	28.4	24.5	30.6	33.3
Late or no prenatal care	6.3	6.2	11.3	6.1	13.2	10.9
Attendant at birth						
Physician	89.2	90.6	4.3	2.7	3.7	0.7
CNM/CM	9.1	8.7	34.1	56.6	24.4	29.4
Non-CNM/CM midwife	0.8	0.1	41.2	36.7	45.6	50.7
Other	0.8	0.5	20.3	3.9	26.4	19.1
Breastfeeding initiation ^e	82.2	82.0	93.5	97.8	92.3	97.5
Receipt of WIC food	38.1	38.5	11.9	10.2	11.4	6.9
Method of payment for delivery						
Medicaid	43.0	43.4	17.5	17.9	15.4	8.6
Private insurance	49.1	49.4	29.6	47.5	20.6	19.0
Self-pay	4.1	3.4	48.9	32.2	59.4	67.9
Other	3.8	3.8	4.0	2.4	4.7	4.6

Source: Authors' calculations based on 2017 birth certificate data.

^aCategory includes 3273 "other," 553 "clinic or doctor's office," and 181 "unknown" location.

^bDoes not include planned home births that were transferred to hospitals.

^cExcludes data from California, which did not report planning status of home birth.

^dThe percent of births for each place of birth that were vaginal births after cesarean.

^eBreastfeeding initiation was not reported for California and Michigan.

35 and over, compared with 18.1% of birth center births and 17.5% of hospital births. With respect to mother's education, 36.3% of planned home and 47.8% of birth center births were to mothers with a bachelor's degree or higher, compared with 32.2% of hospital births. Only 17.7% of planned home births were to mothers having their first live birth, compared with 33.4% of birth center and 38.2% of hospital births. Only 0.9%

of women having a planned home and 1.1% of women having a birth center birth smoked during pregnancy, compared with 7.0% of women with a hospital birth.

When medical risk factors were examined, we found that mothers with planned home or birth center births were less likely than those with hospital births to have a pre-pregnancy body mass index of 30 or more (obesity). In 2017, 13.2%

TABLE 3 Percentage of birth center and planned home births by method of payment for delivery, United States, and each state, 2017

	Birth center births (n = 19 878)			Planned home births (n = 28 994) ^{a,b}		
	Medicaid	Private insurance	Self-pay	Medicaid	Private insurance	Self-pay
United States	17.9	47.5	32.2	8.6	19.0	67.9
Alabama	c	c	c	11.0	21.9	58.9
Alaska	30.8	54.2	6.8	29.4	38.5	14.7
Arizona	12.2	64.1	21.6	2.2	6.0	89.9
Arkansas	4.6	89.7	5.7	1.6	4.0	87.6
California	21.0	23.6	51.1	a	a	a
Colorado	14.1	76.8	7.5	7.1	15.3	71.0
Connecticut	23.1	73.1	3.8	18.9	40.9	36.6
Delaware	21.4	69.3	6.4	0	0	100.0
District of Columbia	37.5	50.0	4.2	2.6	76.9	20.5
Florida	37.2	46.3	16.1	30.4	36.5	31.5
Georgia	17.6	38.1	34.5	3.6	10.8	82.9
Hawaii	c	c	c	11.4	7.6	73.4
Idaho	24.1	30.4	42.0	16.4	14.1	53.2
Illinois	c	c	c	4.0	38.2	54.6
Indiana	0.0	13.8	85.8	0.5	4.2	93.9
Iowa	c	c	c	3.7	18.3	71.9
Kansas	19.1	59.6	16.6	0.5	17.2	79.9
Kentucky	37.0	55.6	7.4	1.1	2.1	79.2
Louisiana	74.5	13.7	9.8	2.5	7.6	79.7
Maine	0.0	21.4	78.6	7.6	7.6	83.9
Maryland	15.4	64.4	12.2	1.7	28.3	66.2
Massachusetts	13.5	81.3	1.6	2.2	17.9	79.3
Michigan	3.4	68.1	27.6	2.6	32.8	62.1
Minnesota	11.0	85.3	1.7	9.8	21.1	65.6
Mississippi	c	c	c	0	4.4	94.7
Missouri	29.5	57.1	11.6	0.6	7.8	73.6
Montana	13.3	32.3	50.6	5.6	16.3	72.2
Nebraska	0.0	76.3	18.4	4.8	9.5	81.0
Nevada	c	c	c	0.5	15.4	82.5
New Hampshire	24.0	63.6	11.6	19.0	36.2	40.5
New Jersey	c	c	c	2.5	51.0	43.5
New Mexico	33.0	57.9	5.3	45.6	16.1	35.1
New York	49.1	44.5	4.6	16.4	43.4	38.2
North Carolina	19.3	71.8	7.8	12.1	12.7	65.0
North Dakota	c	c	c	3.1	6.3	85.4
Ohio	0.3	1.8	97.9	1.6	2.8	91.8
Oklahoma	0.0	30.4	67.9	0.2	12.0	74.2
Oregon	21.3	62.0	14.9	15.9	33.4	49.9
Pennsylvania	7.3	41.0	51.3	0.6	4.2	93.4
Rhode Island	c	c	c	28.6	54.3	8.6
South Carolina	17.6	49.9	13.2	3.3	8.1	86.8
South Dakota	c	c	c	9.7	11.1	77.8

(Continues)

TABLE 3 (Continued)

	Birth center births (n = 19 878)			Planned home births (n = 28 994) ^{a,b}		
	Medicaid	Private insurance	Self-pay	Medicaid	Private insurance	Self-pay
Tennessee	21.7	64.2	11.3	1.9	12.8	80.8
Texas	11.6	44.6	43.1	0.8	10.8	86.7
Utah	3.1	12.1	83.5	0.4	6.5	90.6
Vermont	c	c	c	38.5	43.1	18.5
Virginia	7.2	35.6	53.4	12.3	28.6	55.9
Washington	32.4	61.5	4.7	27.9	48.8	18.3
West Virginia	16.0	44.0	40.0	2.4	6.0	90.5
Wisconsin	18.0	39.0	41.5	7.8	5.4	77.8
Wyoming	c	c	c	13.5	23.6	59.5

Source: Authors' calculations based on 2017 birth certificate data.

^aExcludes data from California, which did not report planning status of home birth.

^bDoes not include planned home births that were transferred to hospitals.

^cData were suppressed for 12 states that had <20 birth center births; see Methods section.

Note: In 2017, 4.6% of planned home and 2.4% of birth center births were reported as "other" payment method; see Table 2.

of women having planned home births and 13.0% of women having birth center births were obese, compared with 27.3% of hospital births.

Women with planned home or birth center births were also much less likely to have a preterm, low birthweight, or multiple birth. In 2017, 2.1% of planned home births and 1.5% of birth center births were preterm, compared with 11.8% of hospital births. About 1.3% of planned home births and 0.9% of birth center births were low birthweight, compared with 8.4% of hospital births. About 0.7% of planned home births were multiple births, compared with 0.2% of birth center and 3.5% of hospital births. About 4.2% of planned home births were vaginal births after cesarean (VBAC), compared with 1.7% of birth center and 2.0% of hospital births, which may reflect restrictions on VBAC among United States hospitals.¹⁸

Compared with women giving birth in a hospital, women with planned home and birth center births were less likely to enter prenatal care during the first trimester of pregnancy, perhaps reflecting delays in finding an appropriate provider and/or working out payment and insurance issues (see below). In 2017, 55.8% of women with planned home births and 69.4% of those with birth center births initiated prenatal care during the first trimester, compared with 77.6% of hospital births.

3.4 | Attendant at birth, breastfeeding, and receipt of WIC food

Nearly 1/3 (29.4%) of planned home births were attended by CNM/CMs, and another 1/2 (50.7%) by non-CNM/CM midwives (Table 2). Only 0.7% of planned home births were delivered by physicians, whereas for 19.1% of these births, the birth attendant was marked as "other," which may include, for example, a family member, emergency

medical technician, or freebirther. For birth center births, 56.6% of births were delivered by CNM/CMs, 36.7% by non-CNM/CM midwives, and only 2.7% by physicians. In contrast, 90.6% of hospital births were delivered by physicians, and just 8.7% by CNM/CMs.

Women with planned home and birth center births were much more likely to initiate breastfeeding than those with hospital births. In 2017, 97.5% of women with planned home births and 97.8% of women with birth center births initiated breastfeeding, compared with 82.0% of women with hospital births. Conversely, only 6.9% of women with planned home births and 10.2% of women with birth center births received WIC food during pregnancy, compared with 38.5% of women with hospital births.

3.5 | State variations in birth payments

In 2017, only 8.6% of planned home births were paid for by Medicaid, compared with 17.9% of birth center births and 43.4% of hospital births (Table 2). Similarly, only 19.0% of planned home births were paid for by private insurance, compared with 47.5% of birth center and 49.4% of hospital births. Instead, more than 2/3 (67.9%) of planned home births were paid out of pocket by the women themselves. This is compared with 32.2% of birth center and just 3.4% of hospital births. A small percentage of births in each place of birth category were reported as "other" payment method.

However, large variations by state were observed in these statistics. In fully 29 US states, more than 70% of planned home births were self-paid, indicating that most women were not able to access assistance in paying for their deliveries (Table 3). In contrast, <20% of planned home births were self-paid in Alaska, Rhode Island, Vermont, and Washington.

In 44 states and Washington DC, fewer than 20% of planned home births were paid for by Medicaid, and the figure was <5% for 28 states and Washington DC. Medicaid was not a viable option to pay for the cost of planned home birth in the vast majority of states in 2017. In contrast, Medicaid paid for 45.6% of planned home births in New Mexico, 38.5% of births in Vermont, 30.4% in Florida, 29.4% in Alaska, 28.6% in Rhode Island, and 27.9% in Washington. In 33 states, fewer than 20% of planned home births were paid for by private insurance, indicating that private insurance was also not a viable option to cover the costs of planned home birth in most states. In contrast, >40% of planned home births were paid for by private insurance in six states and Washington DC (Table 3).

When birth center births were examined, we found that about 1/3 were self-paid, compared with 2/3 of planned home births. Less than 10% of birth center births were self-paid in 13 states (Alaska, Arkansas, Colorado, Connecticut, Delaware, Kentucky, Louisiana, Massachusetts, Minnesota, New Mexico, New York, North Carolina, and Washington) and Washington DC. In contrast, more than 80% of birth center births were self-paid in Ohio (97.9%), Indiana (85.8%), and Utah (83.5%).

4 | DISCUSSION

Although the total number of births in the United States has been slowly declining in recent years, the absolute number of planned home and birth center births has been increasing, resulting in 1.61% of all births now occurring outside the hospital. Although data available from birth certificates are limited, we found that women with planned home and birth center births were less likely to have a number of population characteristics associated with poor pregnancy outcomes, including teen births, smoking during pregnancy, obesity, and preterm, low birthweight, and multiple births, and were more likely to be highly educated than women with hospital births. The percent of women having first births was lower for planned home than for hospital births, which is encouraging given findings from England that home births had better outcomes among multiparous women.¹⁹ These findings taken together suggest that women with planned home and birth center births typically have the characteristics of what are generally seen as low-risk births.

In contrast, women with planned home and birth center births were more likely to begin prenatal care after the first trimester of pregnancy, which may reflect delays in finding an appropriate provider and in working out payment and insurance issues. In addition, a higher percentage of planned home than hospital births were to women aged 35 and over.

The proportion of births that were VBACs was notably higher among planned home than among hospital births. Many United States hospitals do not allow access to VBAC,¹⁸ and women denied a hospital VBAC may ultimately choose to have a VBAC in an out-of-hospital setting.^{20,21} Improving access to hospital VBACs could possibly reduce the demand for out-of-hospital VBACs.

We found strong regional patterns in out-of-hospital births, with these births being several times more likely in the Pacific Northwest states of Alaska, Idaho, Montana, Oregon, Washington, and Wyoming than in southeastern states such as Alabama, Louisiana, and Mississippi. This pattern may be explained in part by wide variations by state in private insurance and Medicaid coverage for out-of-hospital births. Ultimately, 2/3 of planned home births and 1/3 of birth center births were self-paid by the mother, compared with only 3% of hospital births. This suggests that, despite successful pilot projects,²⁴ most current payment mechanisms are not structured to support out-of-hospital birth options for a large proportion of women seeking them. This lack of access to payment options for out-of-hospital births may prevent many women from choosing these births. Substantial variations in state laws concerning the practice and licensing of non-CNM/CM midwives may also contribute to state variations in out-of-hospital births.²⁵ Further research is needed on the relationship between the policy environment and out-of-hospital birth incidence and outcomes.

Despite cautionary editorials in major medical journals highlighting the dangers of out-of-hospital births in general and home births in particular^{26,27} and the substantial out-of-pocket costs associated with these births, an increasing proportion of women are choosing to give birth outside the hospital. In one national survey, mothers who had recently given birth in a hospital were asked if they would consider giving birth at home or a birth center in their future birth, and 64% expressed an interest in a birth center birth and 29% would consider a home birth. One-fourth of respondents said they would definitely want a birth center birth in the future.²⁹

The question that obviously arises from these data is what is happening in hospital births that leads to this small but potentially much larger group of women, many of whom have experienced a hospital birth, to seek to give birth elsewhere, even when that means bucking convention and paying more to do so. Advocates of hospital birth have primarily focused on the dangers they see in home births and restricting midwifery practices that support home birth,²⁷ while at the same time erecting legal, financial, and regulatory barriers for birth centers.³⁰ Nonetheless, we have the highest proportion of out-of-hospital births in the 30 years such data have been collected. Women generally choose out-of-hospital birth because they feel that it is safer, with lower cesarean rates and fewer interventions; they also feel more empowered and in control of their experience.^{31,32} Perceived poor treatment that women received when they

gave birth in a hospital is also a significant factor in the choice of out-of-hospital birth.^{31,32} For those interested in encouraging hospital birth, the best route to take would be to determine how to make hospital birth a more supportive, collaborative, and empowering experience for mothers and families. At the same time, it is possible to make out-of-hospital birth safer through the establishment of collaborative agreements between hospitals and out-of-hospital birth providers. This could improve communications between birth providers, and smooth patient transfers when needed.^{34,35}

Strengths of the study include the comprehensiveness of birth certificate data, which include information on the entire population of about 3.9 million United States births each year. Information for the data items used in the study is considered to be reasonably well reported.^{36,37} Limitations include the less than national coverage for some variables. For example, smoking during pregnancy is not reported by two states comprising 15% of United States births.⁹ In addition, it is impossible to ascertain the planning status of home birth for fully 12% of United States births, since California does not report the planning status of home birth variable on the state's birth certificate.⁹ Even for the other 49 states and Washington DC that do report the planning status of home birth, there is no way to identify planned home births that are transferred to the hospital during labor and delivery; these are recorded on the birth certificate simply as hospital births. Thus, the planned home birth category used in this study is an underestimate of the number of women who actually intended to deliver at home in the United States.³⁸ The term community birth (including planned home and birth center births) is generally preferred for studies of this type as it describes what these births are, rather than defining them by what they are not, and also does not inadvertently imply that hospital birth is normative, and out-of-hospital birth is alternative or marginal.¹⁰ However, as a result of the limitations noted above, we have chosen to stay with the out-of-hospital birth terminology for this paper, to facilitate long-term trend analysis, and because of the current inability of birth certificate data to accurately identify community births in all states.

4.1 | Conclusions

Our findings document the continued growth of out-of-hospital births in the United States—a phenomenon that challenges the dominant model of maternity care and, for some mothers, raises questions about the nature of that care. Instead of a system in which the dominant focus is on the potential risks of childbirth, society might be better served by a maternity care system in which mothers, wherever they give birth, feel empowered, engaged, and safe. In such a system, the emphasis is less on place of birth and much more on how best to serve the needs of mothers, infants, and families.

ACKNOWLEDGMENTS

We gratefully acknowledge support from the Eunice Kennedy Shriver National Center for Child Health and Human Development grant P2C-HD041041, Maryland Population Research Center, and the Maternal and Child Health Bureau grant R40MC29444 to Boston University School of Public Health.

ORCID

Marian F. MacDorman  <https://orcid.org/0000-0003-4266-3163>

Eugene Declercq  <https://orcid.org/0000-0001-5411-3033>

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How to cite this article: MacDorman MF, Declercq E. Trends and state variations in out-of-hospital births in the United States, 2004-2017. *Birth*. 2018;00:1-10. <https://doi.org/10.1111/birt.12411>